


Alg Curve Fitting II

Homework

Relating Algebra and Calculus Scores The following data represent scores in an algebra achievement test and calculus achievement test for the same student. Treat the algebra test score as the independent variable and the calculus test score as the dependent variable.




Algebra Score	Calculus Score
17	73
21	86
11	64
16	61
15	70
11	71
24	90
27	68
19	84
8	52

Source: "Factors Affecting Achievement in the First Course in Calculus," by Edge and Friedberg, *Journal of Experimental Education*, Vol. 52, No. 3.

- Use a graphing utility to draw a scatter diagram.
- Use a graphing utility to find the line of best fit to the data.
- Interpret the slope.
- Predict the score a student would receive on the calculus achievement test if she scored a 20 on the algebra achievement test.

Miles Per Gallon An engineer collects data showing the speed s of a Ford Taurus and its average miles per gallon, M . See the table.



Speed, s	Miles per Gallon, M
30	18
35	20
40	23
40	25
45	25
50	28
55	30
60	29
65	26
65	25
70	25

- Using a graphing utility, draw a scatter diagram of the data. ~~Comment on the type of relation that may exist between the two variables.~~
- Find the quadratic function of best fit.
- Using a graphing utility, draw the quadratic function of best fit on your scatter diagram.
- Using the function found in (b), determine the speed that maximizes miles per gallon.
- Compare your result in (d) to the data.
- Using the function found in (b), predict the miles per gallon of the car if you travel an average of 63 miles per hour.

Aids Cases in the US The data below represents the cumulative number of reported AIDS cases in the United States from 1983-1994.

O-M-T-G-N-O-V-II

Year, t	Number of AIDS Cases, A
1983	4,589
1984	10,750
1985	22,399
1986	41,256
1987	69,592
1988	104,644
1989	146,574
1990	193,878
1991	251,638
1992	326,648
1993	399,613
1994	457,280

Source: Center for Disease Control.

- Using a graphing utility, draw a scatter diagram of the data. ~~Comment on the type of relation that appears to exist between the two variables.~~
- Using your graphing utility, find the cubic function of best fit.
- Draw the cubic function of best fit found in (b) on your scatter diagram. Comment on the fit.
- Use the function found in (b) to predict the cumulative number of AIDS cases reported in the United States in 1995.
- Do you think the function found in (b) will be useful in predicting the number of AIDS cases in 1999?